

SEQUENCE LISTING

<110> Cambridge University Technical Services Limited
Doherty, Aidan
Della, Marina
Weller, Geoffrey
Jackson, Stephen

<120> Prokaryotic DNA Repair Ligases

<130> 6947-73362-01

<140> US 10/568,055

<141> 2006-02-10

<150> PCT/GB2004/003349

<151> 2004-08-02

<150> US 60/494,088

<151> 2003-08-12

<160> 90

<170> PatentIn version 3.1

<210> 1

<211> 10

<212> PRT

<213> Artificial sequence

<220>

<223> Conserved motif

<400> 1

Arg	Leu	Val	Phe	Asp	Leu	Asp	Pro	Gly	Glu
1				5					10

<210> 2

<211> 10

<212> PRT

<213> Artificial sequence

<220>

<223> Conserved motif

<400> 2

Ser	Gly	Ser	Lys	Gly	Leu	His	Leu	Tyr	Thr
1				5					10

<210> 3

<211> 6

<212> PRT

<213> Artificial sequence

<220>

<223> Conserved motif

<400> 3

Lys	Val	Phe	Val	Asp	Trp
1				5	

<210>	4	
<211>	20	
<212>	DNA	
<213>	Artificial sequence	
<220>		
<223>	Primer	
<400>	4	
	atgcgagcca tttggacggg	20
<210>	5	
<211>	25	
<212>	DNA	
<213>	Artificial sequence	
<220>		
<223>	Primer	
<400>	5	
	ggatcctcac ggaggcgttg ggacg	25
<210>	6	
<211>	20	
<212>	DNA	
<213>	Artificial sequence	
<220>		
<223>	Primer	
<400>	6	
	atgggttcgg cgtcggagca	20
<210>	7	
<211>	26	
<212>	DNA	
<213>	Artificial sequence	
<220>		
<223>	Primer	
<400>	7	
	tcctcattcg cgcaccacct cactgg	26
<210>	8	
<211>	15	
<212>	DNA	
<213>	Artificial sequence	
<220>		
<223>	Oligonucleotide	
<400>	8	
	ctgcagctga tgcgc	15
<210>	9	
<211>	20	
<212>	DNA	
<213>	Artificial sequence	
<220>		

<223> Oligonucleotide	
<400> 9	
atccggcgca tcagctgcag	20
<210> 10	
<211> 25	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> Oligonucleotide	
<400> 10	
agtcgatacct gcgcatcatc tgcag	25
<210> 11	
<211> 41	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> Oligonucleotide	
<400> 11	
accgggggat ccgtacagtc tatccggcgc atcagctgca g	41
<210> 12	
<211> 50	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> 50mer substrate	
<400> 12	
gtaacaaagt ttggattgct actgaccgct ctcgtgctcg tcgctgcgtt	50
<210> 13	
<211> 50	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> Oligonucleotide	
<400> 13	
gtctgtctca ctattagaac cctttagagt catgcgtcgc gaggcaacgc	50
<210> 14	
<211> 43	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> Oligonucleotide	
<400> 14	
gcctcgcgac gcatgactct aaagggttct aatagtgaga cag	43
<210> 15	
<211> 41	
<212> DNA	

<213> Artificial sequence
 <220>
 <223> Oligonucleotide
 <400> 15
 gcgacgagca cgagagcggc cagtagcaat ccaaactttg t 41
 <210> 16
 <211> 50
 <212> DNA
 <213> Artificial sequence
 <220>
 <223> Oligonucleotide
 <400> 16
 gtaacaaagt ttggattgct actgaccgct ctcgtgctcg tcgctgcgtt 50
 <210> 17
 <211> 52
 <212> DNA
 <213> Artificial sequence
 <220>
 <223> Oligonucleotide
 <400> 17
 ctgtctgtct cactattaga accctttaga gtcattgcgtc gcgaggcaac gc 52
 <210> 18
 <211> 20
 <212> DNA
 <213> Artificial sequence
 <220>
 <223> Oligonucleotide
 <400> 18
 gaaaccacgt accggcgtgt 20
 <210> 19
 <211> 13
 <212> DNA
 <213> Artificial sequence
 <220>
 <223> Oligonucleotide
 <400> 19
 ctttggtcga tgg 13
 <210> 20
 <211> 26
 <212> DNA
 <213> Artificial sequence
 <220>
 <223> Oligonucleotide
 <400> 20
 ctgcagatca tgcgccggat tgcccc 26

<210>	21	
<211>	17	
<212>	DNA	
<213>	Artificial sequence	
<220>		
<223>	Oligonucleotide	
<400>	21	
	gacgtctagt acgcggc	17
<210>	22	
<211>	20	
<212>	DNA	
<213>	Artificial sequence	
<220>		
<223>	Primer	
<400>	22	
	caagtatgga tctcgaggtt	20
<210>	23	
<211>	20	
<212>	DNA	
<213>	Artificial sequence	
<220>		
<223>	Primer	
<400>	23	
	ctgttctaga ggtacctagt	20
<210>	24	
<211>	20	
<212>	DNA	
<213>	Artificial sequence	
<220>		
<223>	Primer	
<400>	24	
	ccttaagttg aacggagtcc	20
<210>	25	
<211>	20	
<212>	DNA	
<213>	Artificial sequence	
<220>		
<223>	Primer	
<400>	25	
	cttgactagc gcactaccag	20
<210>	26	
<211>	21	
<212>	DNA	
<213>	Artificial sequence	
<220>		

<223> Primer
<400> 26
ggcaggagaa ttttcagcat c

21

<210> 27
<211> 8
<212> PRT
<213> Bacillus subtilis

<400> 27
Glu Val Lys Tyr Asp Gly Tyr Arg
1 5

<210> 28
<211> 8
<212> PRT
<213> Bacillus subtilis

<400> 28
Leu Thr Leu Asp Gly Glu Ile Val
1 5

<210> 29
<211> 12
<212> PRT
<213> Bacillus subtilis

<400> 29
Cys Phe Leu Ala Phe Asp Leu Leu Glu Arg Ser Gly
1 5 10

<210> 30
<211> 5
<212> PRT
<213> Bacillus subtilis

<400> 30
Glu Gly Ile Val Ala
1 5

<210> 31
<211> 11
<212> PRT
<213> Bacillus subtilis

<400> 31
Trp Leu Lys Tyr Lys Asn Phe Lys Gln Ala Tyr
1 5 10

<210> 32
<211> 11
<212> PRT
<213> Bacillus subtilis

<400> 32
Ile Gly Phe Glu Phe Gln Met Asp Trp Thr Glu
1 5 10

<210> 33
 <211> 8
 <212> PRT
 <213> Bacillus halodurans

 <400> 33
 Glu Val Lys Tyr Asp Gly Phe Arg
 1 5

 <210> 34
 <211> 8
 <212> PRT
 <213> Bacillus halodurans

 <400> 34
 Ile Thr Ile Asp Gly Glu Leu Val
 1 5

 <210> 35
 <211> 12
 <212> PRT
 <213> Bacillus halodurans

 <400> 35
 Thr Leu Leu Ala Phe Asp Ile Leu Glu Leu Lys Gly
 1 5 10

 <210> 36
 <211> 5
 <212> PRT
 <213> Bacillus halodurans

 <400> 36
 Glu Gly Val Val Ala
 1 5

 <210> 37
 <211> 11
 <212> PRT
 <213> Bacillus halodurans

 <400> 37
 Trp Leu Lys Lys Lys Asn Phe Arg Gln Val Thr
 1 5 10

 <210> 38
 <211> 11
 <212> PRT
 <213> Bacillus halodurans

 <400> 38
 His Arg Phe Arg Leu Asp Val Lys Pro Ala Gln
 1 5 10

 <210> 39
 <211> 8

<212> PRT
 <213> Mycobacterium tuberculosis

 <400> 39
 Glu Pro Lys Trp Asp Gly Phe Arg
 1 5

 <210> 40
 <211> 8
 <212> PRT
 <213> Mycobacterium tuberculosis

 <400> 40
 Cys Val Ile Asp Gly Glu Ile Ile
 1 5

 <210> 41
 <211> 12
 <212> PRT
 <213> Mycobacterium tuberculosis

 <400> 41
 Ser Phe Ile Ala Phe Asp Leu Leu Ala Leu Gly Asp
 1 5 10

 <210> 42
 <211> 5
 <212> PRT
 <213> Mycobacterium tuberculosis

 <400> 42
 Asp Gly Val Ile Ala
 1 5

 <210> 43
 <211> 11
 <212> PRT
 <213> Mycobacterium tuberculosis

 <400> 43
 Met Phe Lys Ile Lys His Leu Arg Thr Ala Asp
 1 5 10

 <210> 44
 <211> 11
 <212> PRT
 <213> Mycobacterium tuberculosis

 <400> 44
 Thr Ala Gln Phe Asn Arg Trp Arg Pro Asp Arg
 1 5 10

 <210> 45
 <211> 8
 <212> PRT
 <213> Bacillus subtilis

<400> 45
 Glu Leu Lys Phe Asp Gly Ile Arg
 1 5

<210> 46
 <211> 8
 <212> PRT
 <213> Bacillus subtilis

<400> 46
 Thr Val Leu Asp Gly Glu Val Ile
 1 5

<210> 47
 <211> 12
 <212> PRT
 <213> Bacillus subtilis

<400> 47
 Val Tyr Cys Val Phe Asp Val Ile Tyr Lys Asp Gly
 1 5 10

<210> 48
 <211> 5
 <212> PRT
 <213> Bacillus subtilis

<400> 48
 Glu Gly Ile Val Ile
 1 5

<210> 49
 <211> 11
 <212> PRT
 <213> Bacillus subtilis

<400> 49
 Trp Leu Lys Val Ile Asn Tyr Asp Tyr Thr Glu
 1 5 10

<210> 50
 <211> 8
 <212> PRT
 <213> Pseudomonas aeruginosa

<400> 50
 Glu Leu Lys Leu Asp Gly Tyr Arg
 1 5

<210> 51
 <211> 8
 <212> PRT
 <213> Pseudomonas aeruginosa

<400> 51
 Ser Trp Leu Asp Gly Glu Leu Val
 1 5

<210> 52
 <211> 12
 <212> PRT
 <213> *Pseudomonas aeruginosa*

 <400> 52
 Leu Tyr Val Leu Phe Asp Leu Pro Tyr His Glu Gly
 1 5 10

 <210> 53
 <211> 5
 <212> PRT
 <213> *Pseudomonas aeruginosa*

 <400> 53
 Glu Gly Val Ile Gly
 1 5

 <210> 54
 <211> 11
 <212> PRT
 <213> *Pseudomonas aeruginosa*

 <400> 54
 Trp Ile Lys Leu Lys Cys Gln Leu Arg Gln Glu
 1 5 10

 <210> 55
 <211> 11
 <212> PRT
 <213> *Pseudomonas aeruginosa*

 <400> 55
 Ala Arg Glu Val Thr Gly Glu Arg Pro Ala Gly
 1 5 10

 <210> 56
 <211> 8
 <212> PRT
 <213> *Mycobacterium tuberculosis*

 <400> 56
 Glu Gly Lys Trp Asp Gly Tyr Arg
 1 5

 <210> 57
 <211> 8
 <212> PRT
 <213> *Mycobacterium tuberculosis*

 <400> 57
 Val Val Leu Asp Gly Glu Ala Val
 1 5

 <210> 58
 <211> 12

```

<212> PRT
<213> Mycobacterium tuberculosis

<400> 58
Glu Phe Trp Ala Phe Asp Leu Leu Tyr Leu Asp Gly
1             5             10

<210> 59
<211> 5
<212> PRT
<213> Mycobacterium tuberculosis

<400> 59
Glu Gly Val Ile Ala
1             5

<210> 60
<211> 11
<212> PRT
<213> Mycobacterium tuberculosis

<400> 60
Trp Val Lys Asp Lys His Trp Asn Thr Gln Glu
1             5             10

<210> 61
<211> 10
<212> PRT
<213> Mycobacterium tuberculosis

<400> 61
Ser Ser Trp Arg Gly Leu Arg Pro Asp Lys
1             5             10

<210> 62
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<223> Bact ATP Consensus
<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa is hydrophobic

<220>
<221> MISC_FEATURE
<222> (5)..(5)
<223> Xaa is hydrophobic

<400> 62
Lys Xaa Asp Gly Xaa Arg
1             5

<210> 63
<211> 6

```

<212> PRT
<213> Artificial sequence

<220>
<223> Bact ATP Consensus
<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is hydrophobic

<220>
<221> MISC_FEATURE
<222> (5)..(6)
<223> Xaa is hydrophobic

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa is polar

<400> 63
Xaa Xaa Gly Glu Xaa Xaa
1 5

<210> 64
<211> 4
<212> PRT
<213> Artificial sequence

<220>
<223> Bact ATP Consensus
<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is hydrophobic

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> Xaa is hydrophobic

<400> 64
Xaa Phe Asp Xaa
1

<210> 65

<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> Bact ATP Consensus
<220>
<221> MISC_FEATURE
<222> (3)..(5)
<223> Xaa is hydrophobic

<400> 65
 Glu Gly Xaa Xaa Xaa
 1 5

<210> 66

<211> 8
 <212> PRT
 <213> T7

<400> 66
 Glu Ile Lys Tyr Asp Gly Val Arg
 1 5

<210> 67
 <211> 8
 <212> PRT
 <213> T7

<400> 67
 Phe Met Leu Asp Gly Glu Leu Met
 1 5

<210> 68
 <211> 10
 <212> PRT
 <213> T7

<400> 68
 His Ile Lys Leu Tyr Ala Ile Leu Pro Leu
 1 5 10

<210> 69
 <211> 5
 <212> PRT
 <213> T7

<400> 69
 Glu Gly Leu Ile Val
 1 5

<210> 70
 <211> 11
 <212> PRT
 <213> T7

<400> 70
 Trp Trp Lys Met Lys Pro Glu Asn Glu Ala Asp
 1 5 10

<210> 71
 <211> 10
 <212> PRT
 <213> T7

<400> 71

Pro Ser Phe Val Met Phe Arg Gly Thr Glu
1 5 10

<210> 72

<211> 10

<212> PRT

<213> Mycobacterium tuberculosis

<400> 72

Arg Leu Val Phe Asp Leu Asp Pro Gly Glu
1 5 10

<210> 73

<211> 10

<212> PRT

<213> Mycobacterium tuberculosis

<400> 73

Ser Gly Ser Lys Gly Leu His Leu Tyr Thr
1 5 10

<210> 74

<211> 6

<212> PRT

<213> Mycobacterium tuberculosis

<400> 74

Lys Val Phe Val Asp Trp
1 5

<210> 75

<211> 10

<212> PRT

<213> Homo sapiens

<400> 75

Glu Leu Val Phe Asp Ile Asp Met Thr Asp
1 5 10

<210> 76

<211> 10

<212> PRT

<213> Homo sapiens

<400> 76

Ser Gly Arg Arg Gly Val His Cys Trp Val
1 5 10

<210> 77

<211> 6

<212> PRT

<213> Homo sapiens

<400> 77

Phe Pro Arg Leu Asp Ile
1 5

<210> 78
 <211> 6
 <212> PRT
 <213> Mus musculus

 <400> 78
 Phe Pro Arg Leu Asp Val
 1 5

 <210> 79
 <211> 10
 <212> PRT
 <213> Drosophila melanogaster

 <400> 79
 Ser Gly Arg Arg Gly Ile His Cys Trp Val
 1 5 10

 <210> 80
 <211> 6
 <212> PRT
 <213> Drosophila melanogaster

 <400> 80
 Tyr Pro Arg Leu Asp Ile
 1 5

 <210> 81
 <211> 10
 <212> PRT
 <213> Saccharomyces cerevisiae

 <400> 81
 Glu Leu Val Phe Asp Ile Asp Met Asp Asp
 1 5 10

 <210> 82
 <211> 10
 <212> PRT
 <213> Saccharomyces cerevisiae

 <400> 82
 Ser Gly Arg Arg Gly Ala His Cys Trp Val
 1 5 10

 <210> 83
 <211> 6
 <212> PRT
 <213> Saccharomyces cerevisiae

 <400> 83
 Tyr Pro Lys Leu Asp Val
 1 5

 <210> 84
 <211> 10
 <212> PRT

<213> Schizosaccharomyces pombe

<400> 84

Ser Gly Arg Arg Gly Ile His Ala Trp Ile
1 5 10

<210> 85

<211> 6

<212> PRT

<213> Schizosaccharomyces pombe

<400> 85

Tyr Pro Arg Leu Asp Val
1 5

<210> 86

<211> 13

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligomer

<400> 86

ggtacgtggt ttc

13

<210> 87

<211> 17

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 87

cggcgcatga tctgcag

17

<210> 88

<211> 20

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 88

gaaaccacgt accggggtgt

20

<210> 89

<211> 39

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligomer

<400> 89

ctgcagatca tgcgccggat tgccccggta cgtgggttc

39

<210> 90

<211> 39

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 90

gaaaccacgt accggggcaa tccggcgcat gatctgcag

39